In the Claims

Applicants have submitted a new complete claim set indicating marked up claims with insertions and deletions indicated by underlining and strikeouts, respectively.

Please cancel claims 1-32 and 34-62 without prejudice or disclaimer.

Please amend pending claims 33, 63, 64, and 65 as noted below.

Please add new claims 67-69 as shown below.

1-32. (Cancelled)

33. (Currently amended) A method of identifying the presence of a PAX8-PPARγ1 or a PPARγ1-PAX8 molecule in a sample, the method comprising:

~~analyzing the sample for the presence of~~ detecting with a nucleic acid probe for a PAX8-PPARγ1 or a PPARγ1-PAX8 nucleic acid molecule ~~or a PAX8-PPARγ1 polypeptide~~ the presence of a PAX8-PPARγ1 or a PPARγ1–PAX8 molecule in the sample.

34-62. (Cancelled)

63. (Currently amended) The method of claim 33, ~~further comprising~~ wherein the detecting comprises:

contacting the sample with at least two nucleic acid amplification primers, wherein a first nucleic acid amplification primer is capable of hybridizing to a PAX8 nucleic acid molecule and a second nucleic acid amplification primer is capable of hybridizing to a PPARγ1 nucleic acid molecule,

amplifying a primed nucleic acid molecule which hybridizes to the first and the second nucleic acid amplification primers~~;~~, and

detecting the presence of an amplified nucleic acid molecule in the sample.

64. (Currently amended) The method of claim 33, ~~further comprising~~ wherein the detecting comprises:

contacting the sample with at least two nucleic acid probes, wherein a first nucleic acid probe is capable of hybridizing to a PAX8 nucleic acid molecule and a second nucleic acid probe is capable of hybridizing to a PPARγ1 nucleic acid molecule, and

detecting the presence of a nucleic acid molecule in the sample which hybridizes to both the first and the second nucleic acid probes.

65. (Currently amended) The method of claim 33, ~~further comprising~~ wherein the detecting comprises:

contacting the sample with a nucleic acid probe which is capable of hybridizing to a PAX8-PPARγ1 nucleic acid fusion juncture, and

detecting the presence of a nucleic acid molecule in the sample which hybridizes to the nucleic acid probe.

66. (Previously added) The method of claim 65, wherein the PAX8-PPARγ1 nucleic acid fusion juncture comprises a sequence selected from the group consisting of SEQ ID NO:7, SEQ ID NO:9 and SEQ ID NO:11.

67. (New) The method of claim 33 wherein the detecting comprises amplifying the PAX8-PPARγ1 or PPARγ1-PAX8 nucleic acid.

68. (New) The method of claim 33 wherein the sample is a thyroid tissue sample.

69. (New) The method of claim 68 wherein the thyroid tissue sample is from a patient suspected of having a thyroid cancer.

REMARKS

Claims 24, 33, and 63-66 were pending. Claim 24 is cancelled. Claims 33, 63, 64 and 65 are amended without prejudice by the present Amendment. Claims 67-69 have been added. Upon entry of these amendments, claims 33, and 63-69 will be pending for further consideration.

Claim 33 is amended to recite the step of detecting with a nucleic acid probe for a PAX8-PPARγ1 or a PPARγ1-PAX8 nucleic acid molecule the presence of a PAX8-PPARγ1 or a PPARγ1–PAX8 molecule in the sample. Basis for this amendment can be found in the specification as originally filed. See, for example page 7 of the specification as filed.

Claims 63 and 64 are amended to recite PPARγ1. Basis for these amendments can be found in the specification as originally filed. See, for example page 7 of the specification as filed.

Claims 67-69 have been added. Basis for the added claims can be found in the specification as originally filed. See, for example pages 6, 7, 45, and 46.

Applicants believe that the above-referenced amendments introduce no new subject matter.

Claim Rejections Under 35 U.S.C. § 112, second paragraph

Claims 33 and 63-66 were rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite or failing to particularly point out and distinctly claim the subject matter the applicant regards as the invention. In response, Applicants have amended claims 33, 63 and 64.

The Examiner rejected claims 33 and 63-66 as allegedly lacking an active or positive step (see page 3 of the Office Action). The Examiner relied on *Ex parte Erlich*, 3 USPQ2d 1011 (Bd. Pat. App. Int. 1986) as authority for requiring that the claims recite an active or positive step.

Without acquiescing to this rejection, Applicants respectfully submit that amended claim 33 complies with the requirements of *Ex parte Erlich*. Indeed, amended claim 33 positively recites the step of "detecting with a nucleic acid probe for a PAX8-PPARγ1 or a PPARγ1-PAX8 nucleic acid molecule the presence of a PAX8-PPARγ1 or a PPARγ1–PAX8 molecule in the sample." In contrast, the claims at issue in *Ex parte Erlich* contained no specific steps. For example, claim 6 in *Ex parte Erlich* failed to recite a single method step and recited only:

> 6. A process for using monoclonal antibodies of Claim 4 to isolate and purify human fibroblast interferon.

Similarly, claim 7 in *Ex parte Erlich* recited only:

> 7. A process for using monoclonal antibodies of Claim 4 to identify human fibroblast interferon.

Amended claim 33 recites a positive step as described above, and Applicants submit that claim 33 and claims 63-69 that depend therefrom comply with the requirements of *Ex parte Erlich.* Therefore, Applicants respectfully request that this rejection of claims 33 and 63-66 under 35 U.S.C. § 112, second paragraph, be reconsidered and withdrawn.

The Examiner also rejected claims 63 and 64 as allegedly vague, because they refer to a "PPARγ" molecule. In response, Applicants have amended claims 63 and 64 to recite "PPARγ1" with no intention of disclaiming equivalents thereto. Therefore, Applicants respectfully request that this rejection of claims 63 and 64 under 35 U.S.C. § 112, second paragraph, be reconsidered and withdrawn.

Claim Rejections Under 35 U.S.C. § 102(b)

The Examiner rejected claim 33 under 35 U.S.C. § 102(b) as being anticipated by Sozzi et al., Cancer Genetics Cytogenetics, 1992 (hereinafter referred to as Sozzi). Applicants respectfully disagree with the Examiner's rejection, because Sozzi does not disclose the elements of claim 33. In particular, Applicants submit that Sozzi does not inherently disclose detecting PAX8-PPARγ1 or PPARγ1-PAX8 molecules as suggested by the Examiner.

Amended claim 33 recites "detecting with a nucleic acid probe for a PAX8-PPARγ1 or a PPARγ1-PAX8 nucleic acid molecule the presence of a PAX8-PPARγ1 or a PPARγ1–PAX8 fusion molecule in the sample." Applicants respectfully submit that Sozzi fails to disclose detecting the presence of a PAX8-PPARγ1 or a PPARγ1–PAX8 molecule as recited in claim 33.

Specifically, Applicants believe that Sozzi fails to disclose a method of identifying the presence of one or more PAX8-PPARγ1 or PPARγ1–PAX8 molecules" because Sozzi only

discloses the detection of t(2;3)(q12-13; p24-25) translocations using cytogenetic techniques. As discussed during the telephonic interview on July 16, 2003, such translocations do not necessarily result in a PAX8-PPARγ1 fusion. Indeed, Applicants submit that cytogenetic techniques used to detect chromosomal translocations have limited resolution. Accordingly, numerous translocations that do not involve a PAX8-PPARγ1 fusion could nonetheless be identified as t(2;3)(q12-13; p24-25) translocations. Therefore, the teachings of Sozzi et al. (outlined above) do not provide a basis for the Examiner's assertions that "it is an inherent property of the t(2,3)(q12-13; p24-25) that it contains the PAX8-PPARγ1 fusion nucleic acid." The Examiner has not provided any factual basis or technical reasoning to reasonably support this assertion. While a (2,3)(q12-13; p24-25) translocation *might* involve a PAX8-PPARγ1 fusion, such a fact is not sufficient to support an inherency rejection. *In re Rijckaert*, the court ruled that the fact that a certain result *may* occur or be present in the prior art is not sufficient to establish the inherency of that result. 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). The law is clear on what is required for a rejection of a claim(s) based on inherency:

> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."

Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Therefore, Applicants respectfully submit that Sozzi should not form the basis for continued rejection since it fails to disclose "the detection of a PAX8-PPARγ1 or PPARγ1–PAX8 molecule" as recited in claim 33.

Sozzi fails to teach that detection of a t(2,3)(q12-13; p24-25) is useful in determining that a PAX8-PPARγ1 is present in a sample because it fails to identify a PAX8-PPARγ1 or a PPARγ1–PAX8 fusion. Moreover, in view of the limitations of cytogenetic analyses discussed above, even if it were known that a t(2,3)(q12-13; p24-25) translocation could be due to a PAX8-PPARγ1 fusion, one of skill in the art would not determine that a PAX8-PPARγ1 fusion is present in a sample based on the detection of the translocation without further analysis.

Applicants respectfully submit that Sozzi cannot form the basis for ongoing rejection under 35 U.S.C. § 102 in view of Sozzi's failure to disclose either one of the steps of claim 33. Therefore, Applicants respectfully request that Examiner reconsider and withdraw the rejection of claim 33 under 35 U.S.C. § 102(b).

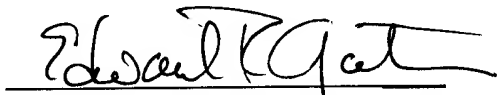
Allowable Subject Matter

Applicants acknowledge that the Examiner found claims 63-66 to be free of prior art.

CONCLUSION

Applicants believe that claims 33 and 63-69 are in condition for allowance. The Examiner is invited to contact the undersigned by telephone to discuss any remaining issues of patentability.

Respectfully submitted,



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Docket No. B00801.70196.US
Date: August 5, 2003
Xx08/10/03